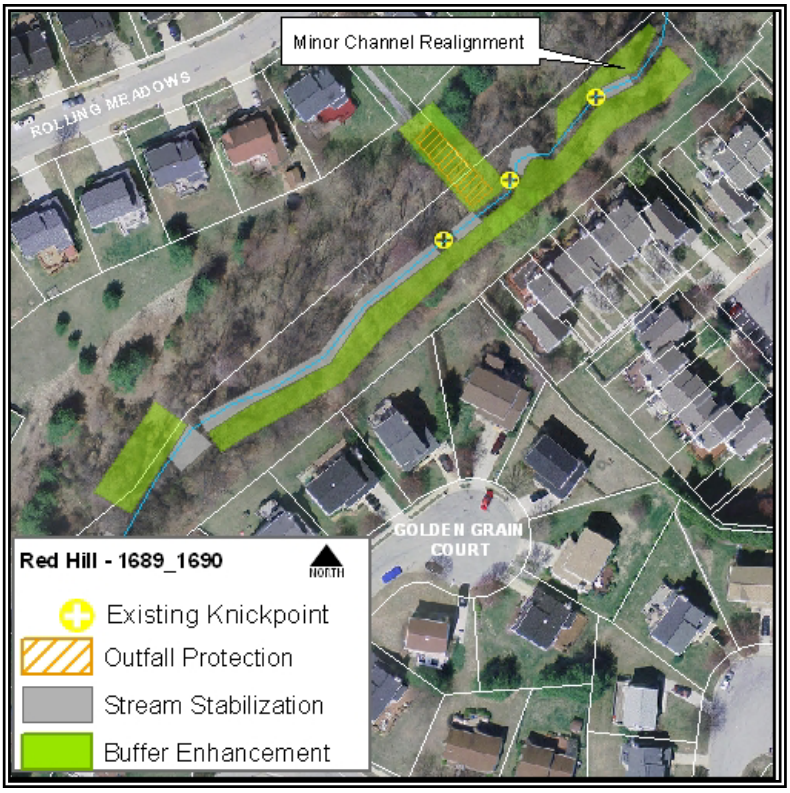
Proposed Project

Project Number: 1689_1690
Subwatershed: Red Hill Branch

Project Type: Stream Restoration
Project Size: Approx. 600 linear feet

Project Location: Between Rolling Meadows and Golden Grain Court, upstream of the culvert at Wheatfield Way.



Project Description: This project would require regrading and stabilization of banks in localized areas throughout the study reach to stabilize the existing actively eroding banks. In some areas the banks may require stone protection to further stabilize the bank. Many trees in the riparian buffer appear to be providing stabilization to the banks through the root masses and therefore should be preserved. A series of 3 knick points exist approximately 300 linear feet upstream of the culvert at Wheatfield Way. These knick points are currently holding the existing grade and should be stabilized using grade control structures in order to prevent further headcutting. A grade control structure should also be applied just upstream of the culvert at Wheatfield Way to further stabilize the culvert. An outfall enters the channel approximately 300 linear feet upstream of the culvert and should be stabilized in conjunction with the stream stabilization work. A riparian buffer enhancement will be applied to areas being regraded and along the left bank (facing downstream) to restore ecological function.

Project Benefits:

Stabilization	The stream banks will be stabilized to reduce scour. The channel bed will be stabilized using grade control structures to protect the existing knick points and prevent further headcutting.
Water Quality	Implementation of this project will provide a reduction in sediment supply and the associated water quality benefits.
Education	The project could provide educational benefits due to the proximity of the project to adjacent residential areas.

Project Constraints:

Environmental	Stream/wetland/forest permitting will be necessary and stream closure periods may affect timing of work. No major environmental constraints are anticipated with this project.
Property Ownership	This project is located on the Longate/Wheatfield natural resource open space region and may impact the existing forest conservation easement located on this property. Adjacent lands include single family residential and townhome complexes.
Facility Access	Access to this site is obtained from Rolling Meadow through a utility easement.
Design / Construction	No major design or construction constraints are present. A sewer line parallels the left bank within 40 feet of the channel.

Proposed Project

Upper Little Patuxent

Project Number: 1689_1690
Subwatershed: Red Hill Branch

Project Type: Stream Restoration

Cost Detail:

ITEM	QTY	UNITS	UNIT COST	TOTAL
Stream Restoration				
Stream restoration/stabilization[1]	600	LF	$565.00	$339,000
Buffer enhancement	650	LF	$30.00	$19,500
Outfall stabilization/protection[2]		LF	$100.00	$0
			Direct Construction Subtotal	$358,500
Indirect Costs				
E/SC, MOT, MOS (included above)				$0
Construction Stakeout (2%)	1	LS	$7,170.00	$7,170
			Base Construction Cost	$365,670
			Mobilization (10% of Directs or $1,000)	$35,850
			Subtotal	$401,520
			Contingency (30%)	$120,456
			Construction Subtotal	$521,976
			Envt'l Studies / Permitting (5% of Construction or $5,000)	$26,099
			Engineering and Surveys	$141,600
			Post-Construction Monitoring ($40 / LF or $4,000)	$24,000
			Total Capital Cost	**$713,675**
Operations and Maintenance Costs				
Annual Maintenance	5	Percent	$17,925	
Discount Rate	5	Percent		
Expected Life	5	Years		
			Net Present Value of Annual Costs	$77,606
			Life Cycle Cost	**$791,300**

[1]Cost per linear foot is based on linear regression of previous stream restoration/stabilization jobs ranging from 35 to 2215 linear feet.
[2]Outfall protection costs are included in the linear foot measurement of stream restoration/stabilization, measuring 80 linear feet.